

AMENDMENTS TO THE CLAIMS:

1.-216. (Cancelled)

217. (Previously Presented) A spinal implant, comprising:
an elongate bone portion formed from a cross-sectional bone slice taken from a diaphysis of a long bone having an outer cortical bone wall surrounding an inner medullary canal, said elongate bone portion having a longitudinal axis and including:

a first end portion;

a second end portion arranged generally opposite said first end portion;

a first bone engaging surface;

a second bone engaging surface arranged generally opposite said first bone engaging surface;

a first sidewall extending between said first and second bone engaging surfaces and including a recessed area disposed between said first and second end portions, said recessed area defined by a partial portion of the medullary canal of the long bone and defining a concave outer surface extending along said longitudinal axis between said first and second end portions from said first bone engaging surface to said second bone engaging surface; and

a second sidewall arranged generally opposite said first sidewall relative to said longitudinal axis, said second sidewall extending between said first and second bone engaging surfaces and including a convex outer surface extending along said longitudinal axis between said first and second end portions from said first bone engaging surface to said second bone engaging surface; and

wherein said concave outer surface of said first sidewall extends generally parallel with and is positioned opposite said convex outer surface of said second sidewall to provide said elongate bone portion with an elongate crescent-shaped outer cross-section in a plane including said longitudinal axis.

218. (Previously Presented) A system including a pair of the spinal implants of claim 217 wherein said pair of spinal implants includes a first implant and a second

implant, said first and second implants positioned adjacent one another with said concave outer surface of said first implant facing said concave outer surface of said second implant with said concave outer surfaces defining a chamber therebetween.

219. (Previously Presented) The system of claim 218 further comprising an osteogenic material disposed within said chamber defined between said concave outer surfaces of said first and second implants.

220. (Previously Presented) The system of claim 218 wherein said first and second implants are positioned such that said longitudinal axis of said first implant lies at an angle oblique angle relative to said longitudinal axis of said second implant.

221. (Previously Presented) The implant of claim 217 wherein said elongate bone portion has a generally rectangular cross-section in a plane including the longitudinal axis.

222. (Previously Presented) The implant of claim 217 wherein each of said first and second bone engaging surfaces is substantially planar.

223. (Previously Presented) The implant of claim 222 wherein each of said first and second bone engaging surfaces includes ridges or teeth.

224. (Previously Presented) The implant of claim 222 wherein each of said first and second bone engaging surfaces is crescent-shaped.

225. (Previously Presented) The implant of claim 217 wherein said first and second bone engaging surfaces are separated by a first height adjacent said first end portion and by a second height adjacent said second end portion, wherein said first height is greater than the second height.

226. (Previously Presented) The implant of claim 217 further comprising a first endwall extending between said first and second bone engaging surfaces, wherein said first endwall includes one or more engagement features adapted to engage an implant holder.

227. (Previously Presented) The implant of claim 226 wherein said engagement features comprise a recess or a projection configured to engage the implant holder.

228. (Previously Presented) The implant of claim 226 wherein said engagement features comprise an opening extending through said first endwall to said concave outer surface of said first sidewall.

229. (Previously Presented) The implant of claim 228 wherein said opening is threaded.

230. (Currently Amended) A spinal implant, comprising:
an elongate bone portion formed from a cross-sectional bone slice taken from a diaphysis of a long bone having an outer cortical bone wall surrounding an inner medullary canal, said elongate bone portion having a longitudinal axis and including:
a first end portion;
a second end portion arranged generally opposite said first end portion;
a first bone engaging surface;
a second bone engaging surface arranged generally opposite said first bone engaging surface and defining an implant height therebetween;
a first sidewall extending between said first and second bone engaging surfaces and including a recessed area disposed between said first and second end portions, said recessed area defined by a partial portion of the medullary canal of the long bone and defining a concave outer surface extending along said longitudinal axis between said first and second end portions from said first bone engaging surface to said second bone engaging surface; and

a second sidewall arranged generally opposite said first sidewall relative to said longitudinal axis, said second sidewall extending between said first and second bone engaging surfaces and including a substantially planar outer surface extending along said longitudinal axis between said first and second end portions and substantially entirely along said implant height from said first bone engaging surface to said second bone engaging surface; and

wherein said concave outer surface defined by said first sidewall is positioned opposite said substantially planar outer surface of said second sidewall relative to said longitudinal axis.

231. (Previously Presented) The implant of claim 230 wherein said first sidewall includes:

a first substantially planar outer surface adjacent said first end portion and a second substantially planar outer surface adjacent said second end portion, each of said first and second substantially planar outer surfaces extending between said first and second bone engaging surfaces; and

wherein said concave outer surface extends axially between said first and second substantially planar outer surfaces.

232. (Previously Presented) The implant of claim 230 wherein said elongate bone portion has a generally rectangular cross-section in a plane including the longitudinal axis.

233. (Currently Amended) ~~The implant of claim 230~~ A spinal implant, comprising: an elongate bone portion formed from a cross-sectional bone slice taken from a diaphysis of a long bone having an outer cortical bone wall surrounding an inner medullary canal, said elongate bone portion having a longitudinal axis and including:

a first end portion;

a second end portion arranged generally opposite said first end portion;

a first bone engaging surface;

a second bone engaging surface arranged generally opposite said first bone engaging surface; and

wherein each of said first and second bone engaging surfaces is substantially planar;

a first sidewall extending between said first and second substantially planar bone engaging surfaces and including a recessed area disposed between said first and second end portions, said recessed area defined by a partial portion of the medullary canal of the long bone and defining a concave outer surface extending along said longitudinal axis between said first and second end portions from said first substantially planar bone engaging surface to said second substantially planar bone engaging surface; and

a second sidewall arranged generally opposite said first sidewall relative to said longitudinal axis, said second sidewall extending between said first and second substantially planar bone engaging surfaces and including a substantially planar outer surface extending along said longitudinal axis between said first and second end portions from said first substantially planar bone engaging surface to said second substantially planar bone engaging surface; and

wherein said concave outer surface defined by said first sidewall is positioned opposite said substantially planar outer surface of said second sidewall relative to said longitudinal axis.

234. (Previously Presented) The implant of claim 233 wherein each of said first and second bone engaging surfaces includes ridges or teeth.

235. (Currently Amended) ~~The implant of claim 230~~ A spinal implant, comprising:
an elongate bone portion formed from a cross-sectional bone slice taken from a diaphysis of a long bone having an outer cortical bone wall surrounding an inner medullary canal, said elongate bone portion having a longitudinal axis and including:

a first end portion;

a second end portion arranged generally opposite said first end portion;

a first bone engaging surface;

a second bone engaging surface arranged generally opposite said first bone engaging surface; and

wherein said first and second bone engaging surfaces are separated by a first height adjacent said first end portion and by a second height adjacent said second end portion, wherein said first height is greater than the second height;

a first sidewall extending between said first and second bone engaging surfaces and including a recessed area disposed between said first and second end portions, said recessed area defined by a partial portion of the medullary canal of the long bone and defining a concave outer surface extending along said longitudinal axis between said first and second end portions from said first bone engaging surface to said second bone engaging surface; and

a second sidewall arranged generally opposite said first sidewall relative to said longitudinal axis, said second sidewall extending between said first and second bone engaging surfaces and including a substantially planar outer surface extending along said longitudinal axis between said first and second end portions from said first bone engaging surface to said second bone engaging surface; and

wherein said concave outer surface defined by said first sidewall is positioned opposite said substantially planar outer surface of said second sidewall relative to said longitudinal axis.

236. (Previously Presented) The implant of claim 230 further comprising a first endwall extending between said first and second bone engaging surfaces, wherein said first endwall includes one or more engagement features adapted to engage an implant holder.

237. (Previously Presented) The implant of claim 236 wherein said engagement features comprise a recess or a projection configured to engage the implant holder.

238. (Previously Presented) The implant of claim 236 wherein said engagement features comprise an opening extending through said first endwall to said concave outer surface of said first sidewall.

239. (Previously Presented) The implant of claim 238 wherein said opening is threaded.

240. (Previously Presented) A method of forming a spinal implant, comprising:
providing a long bone having a diaphysis;
removing a cross-sectional bone slice from the diaphysis of the long bone, the cross-sectional bone slice including an outer cortical bone wall surrounding an inner medullary canal having a length;
cutting the bone slice along the length of the medullary canal and dividing the bone slice into a plurality of bone slice segments, with each of the bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the medullary canal; and
forming the spinal implant of claim 217 from one of the plurality of bone slice segments, with the recessed area of the first sidewall defined by the partial portion of the medullary canal.

241. (Previously Presented) The method of claim 240 further comprising forming the spinal implant of claim 217 from each of the plurality of bone slice segments obtained from a single bone slice.

242. (Previously Presented) The method of claim 240 wherein the cutting of the bone slice along the length of the medullary canal comprises dividing the bone slice into three bone slice segments, with each of the three bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the inner medullary canal.

243. (Previously Presented) The method of claim 242 further comprising forming the spinal implant of claim 217 from each of the three bone slice segments obtained from a single bone slice.

244. (Previously Presented) The method of claim 240 further comprising forming a cylindrical bone dowel from one of the bone slice segments; and forming the spinal implant of claim 217 from one of the remaining bone slice segments.

245. (Previously Presented) A method of forming a spinal implant, comprising: providing a long bone having a diaphysis; removing a cross-sectional bone slice from the diaphysis of the long bone, the cross-sectional bone slice including an outer cortical bone wall surrounding an inner medullary canal having a length; cutting the bone slice along the length of the medullary canal and dividing the bone slice into a plurality of bone slice segments, with each of the bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the medullary canal; and forming the spinal implant of claim 230 from one of the plurality of bone slice segments, with the recessed area of the first sidewall defined by the partial portion of the medullary canal.

246. (Previously Presented) The method of claim 245 further comprising forming the spinal implant of claim 230 from each of the plurality of bone slice segments obtained from a single bone slice.

247. (Previously Presented) The method of claim 245 wherein the cutting of the bone slice along the length of the medullary canal comprises dividing the bone slice into three bone slice segments, with each of the three bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the inner medullary canal.

248. (Previously Presented) The method of claim 247 further comprising forming the spinal implant of claim 230 from each of the three bone slice segments obtained from a single bone slice.

249. (Previously Presented) The method of claim 245 further comprising forming a cylindrical bone dowel from one of the bone slice segments; and forming the spinal implant of claim 230 from one of the remaining bone slice segments.

250. (Previously Presented) A method of forming a spinal implant, comprising:
providing a long bone having a diaphysis;
removing a cross-sectional bone slice from the diaphysis of the long bone, the cross-sectional bone slice including an outer cortical bone wall surrounding an inner medullary canal having a length;
cutting the bone slice along the length of the medullary canal and dividing the bone slice into a plurality of bone slice segments, with each of the bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the medullary canal; and
forming an elongate bone portion from one of the plurality of bone slice segments, the elongate bone portion having a longitudinal axis and including:
a first end portion;
a second end portion arranged generally opposite the first end portion;
a first bone engaging surface;
a second bone engaging surface arranged generally opposite the first bone engaging surface; and
a first sidewall extending between the first and second bone engaging surfaces and including a recessed area disposed between the first and second end portions, the recessed area defined by the partial portion of the medullary canal and defining a concave outer surface extending along the longitudinal axis between the first and second end portions from the first bone engaging surface to the second bone engaging surface.

251. (Previously Presented) The method of claim 250 further comprising forming the elongate bone portion from each of the plurality of bone slice segments obtained from a single bone slice.

252. (Previously Presented) The method of claim 250 wherein the cutting of the bone slice along the length of the medullary canal comprises dividing the bone slice into three bone slice segments, with each of the three bone slice segments including a partial portion of the outer cortical bone wall and a partial portion of the inner medullary canal.

253. (Previously Presented) The method of claim 252 further comprising forming the elongate bone portion from each of the three bone slice segments obtained from a single bone slice.

254. (Previously Presented) The method of claim 250 further comprising forming a cylindrical bone dowel from one of the bone slice segments; and forming the elongate bone portion from one of the remaining bone slice segments.

255. (Previously Presented) The method of claim 250 wherein the elongate bone portion has a generally rectangular cross-section in a plane including the longitudinal axis.

256. (Previously Presented) The method of claim 250 wherein each of the first and second bone engaging surfaces is substantially planar.

257. (Previously Presented) The method of claim 256 further comprising providing each of the first and second bone engaging surfaces with a plurality of ridges or teeth.

258. (Previously Presented) The method of claim 250 wherein the elongate bone portion further includes a second sidewall arranged generally opposite the first sidewall relative to the longitudinal axis, the second sidewall extending between the first and second bone engaging surfaces and including a convex outer surface extending along the longitudinal axis between the first and second end portions from the first bone engaging surface to the second bone engaging surface; and

wherein the concave outer surface of the first sidewall extends generally parallel with and is positioned opposite the convex outer surface of the second sidewall to provide the

elongate bone portion with an elongate crescent-shaped outer cross-section in a plane including the longitudinal axis.

259. (Previously Presented) The method of claim 250 wherein the elongate bone portion further includes a second sidewall arranged generally opposite the first sidewall relative to the longitudinal axis, the second sidewall extending between the first and second bone engaging surfaces and including a substantially planar outer surface extending along the longitudinal axis between the first and second end portions from the first bone engaging surface to the second bone engaging surface; and

wherein the concave outer surface defined by the first sidewall is positioned opposite the substantially planar outer surface of the second sidewall relative to the longitudinal axis.

260. (Previously Presented) The implant of claim 259 wherein the first sidewall includes:

a first substantially planar outer surface adjacent the first end portion and a second substantially planar outer surface adjacent the second end portion, each of the first and second substantially planar outer surfaces extending between the first and second bone engaging surfaces; and

wherein the concave outer surface extends axially between the first and second substantially planar outer surfaces.

261. (Previously Presented) The method of claim 250 wherein the first and second bone engaging surfaces are separated by a first height adjacent the first end portion and by a second height adjacent the second end portion, wherein the first height is greater than the second height.

262. (Previously Presented) The method of claim 250 wherein the elongate bone portion further includes a first endwall extending between the first and second bone engaging surfaces, wherein the first endwall includes one or more engagement features adapted to engage an implant holder.

263. (New) The implant of claim 217 wherein one of said first and second end portions comprises an insertion end, said insertion end being shaped to facilitate insertion into a vertebral cavity.

264. (New) The implant of claim 263 wherein said insertion end is tapered to facilitate insertion into the vertebral cavity.

265. (New) The implant of claim 264 wherein said insertion end includes:
a first tapered surface extending from said first bone engaging surface; and
a second tapered surface extending from said second bone engaging surface; and
wherein said first and second tapered surfaces are inwardly tapered toward one another along said insertion end.

266. (New) The implant of claim 265 wherein said insertion end includes a third tapered surface extending from said convex outer surface of said second sidewall.

267. (New) The implant of claim 266 wherein said insertion end includes a fourth tapered surface extending from said concave outer surface of said first sidewall; and
wherein said third and fourth tapered surfaces taper toward one another along said insertion end.

268. (New) The implant of claim 264 wherein said insertion end includes:
a first tapered surface extending from said convex outer surface of said second sidewall; and
a second tapered surface extending from said concave outer surface of said first sidewall; and
wherein said first and second tapered surfaces are inwardly tapered toward one another along said insertion end.

269. (New) The implant of claim 264 wherein said insertion end is bounded on at least three sides by tapered surfaces.

270. (New) The implant of claim 263 wherein said insertion end is bullet-shaped to facilitate insertion into the vertebral cavity.

271. (New) The implant of claim 230 wherein one of said first and second end portions comprises an insertion end, said insertion end being shaped to facilitate insertion into a vertebral cavity.

272. (New) The implant of claim 271 wherein said insertion end is rounded to facilitate insertion into the vertebral cavity.

273. (New) The implant of claim 272 wherein said insertion end is rounded between said first and second sidewalls.

274. (New) The implant of claim 272 wherein said rounded insertion end defines a curved surface extending from said first sidewall to said second sidewall.

275. (New) The implant of claim 273 wherein said insertion end includes:
a first inclined surface extending from said first bone engaging surface; and
a second inclined surface extending from said second bone engaging surface; and
wherein said first and second inclined surfaces are inwardly tapered toward one another along said insertion end.

276. (New) The implant of claim 271 wherein said insertion end includes:
a first inclined surface extending from said first bone engaging surface; and
a second inclined surface extending from said second bone engaging surface; and
wherein said first and second inclined surfaces are inwardly tapered toward one another along said insertion end.